REMARKS

On entry of this Response, Applicants have amended claims 1, 8, 14, 20, 26, 32, and 37-39 to better claim the invention. No new matter has been added.

Claims 6, 7, 12, 13, 18, 19, 24, 25, 30, 31 and 36 were withdrawn in response to the Restriction Requirements dated January 17, 2007.

I.   Telephone Interview

Applicants thank the Examiner for the courtesy of a telephone interview conducted on November 12, 2008.

During the interview, Applicants discussed the instant application with the Examiner. Applicants noted that the cited references do not disclose or suggest a tabular view of a model. Applicants also noted that the cited references fail to disclose or suggest annotations added to a model by a user.

II.   Claim Rejections under 35 U.S.C. §102(a)

In the Office Action, the Examiner rejected claims 1-5, 8-11, 14-17, 20-23, 26-29, 32-35 and 37-39 under 35 U.S.C. §102(a) as being anticipated by Sauro et al., Omics: A Journal of integrative Biology, Vol. 7, No. 4, 2003 (hereinafter "Sauro"). (See the Office Action, page 3). The Examiner also cited Hucka et al., Pacific Symposium on Biocomputing Vol. 7, p. 450-461, 2002 (hereinafter "Hucka") as evidence that user annotations are inherent to the system of Sauro. (See the Office Action, page 4). Applicants respectfully traverse this rejection.

A.   Claims 1 and 20

Applicants' claim 1 recites:

> 1.   A system for improved modeling of a biological system that comprises a plurality of chemical reactions, the system comprising:
> a modeling component comprising a graphical user interface for accepting user commands and input to construct a model of the biological system, the model being represented in a

tabular view and a graphical view, the ***tabular view being a
representation of at least a portion of the model in one or more
tables, the tabular view being adapted to receive the user
commands and input to construct the model and display at least
one of the plurality of chemical reactions in the one or more
tables***;
    a simulation engine accepting as input the constructed
model of the biological system and generating as output dynamic
behavior of the biological system; and
    an analysis environment in communication with the
simulation engine, the analysis environment displaying dynamic
behavior of the biological system.

Applicants' claim 20 recites:

20.   A system for improved modeling of a chemical reaction
comprising:
    a modeling environment accepting user commands and
input for constructing a model of a chemical reaction, the model
being represented in a tabular view and a graphical view, the
***tabular view being a representation of at least a portion of the
model in one or more tables, the tabular view being adapted to
receive the user commands and input to construct the model and
display at least one of the plurality of chemical reactions in the
one or more tables***;
    a simulation engine accepting as input the constructed
model of the chemical reaction and generating as output an
expected result; and
    an analysis environment in communication with the
simulation engine, the analysis environment displaying the
expected result.

Applicants respectfully urge that Sauro does not disclose or suggest at least a ***tabular
view being a representation of at least a portion of the model in one or more tables, the
tabular view being adapted to receive the user commands and input to construct the model
and display at least one of the plurality of chemical reactions in the one or more tables***, which
is present in Applicants' claims 1 and 20.

In the Office Action, the Examiner claims that "[i]n the lower left portion of figure 12,
the tabular view of METATOOLS displays the modes, sets of enzymes working together at
steady state to construe a plausible subpathways, of the reactions representative of the model
displayed in graphical format in the center of figure 12," and "[t]hus Sauro et al. shows the

adaptation of the tabular view to receive user commands and input to construct the model." (See the Office Action, page 5). Applicants urge that Figure 12 of Sauro does not disclose at least a *tabular view being a representation of at least a portion of the model in one or more tables*, *the tabular view being adapted to receive the user commands and input to construct the model and display at least one of the plurality of chemical reactions in the one or more tables*.

In Sauro, the lower left portion of Figure 12 merely displays elementary modes for a model displayed on a main canvas. (See Sauro, page 366). Sauro describes that one of the elementary modes is highlighted and the corresponding reactions are highlighted on the model displayed on the main canvas in Figure 12. (See Sauro, page 366). Sauro, however, does not disclose or suggest that the lower left portion of Figure 12 is a representation of at least a portion of the model in one or more tables. In addition, Sauro does not disclose or suggest that the lower left portion of Figure 12 is adapted to receive the user commands and input to construct the model and display at least one of the chemical reactions in one or more tables.

For at least the reasons set forth above, Applicants urge that Sauro does not disclose or suggest Applicants' claimed *tabular view being a representation of at least a portion of the model in one or more tables*, *the tabular view being adapted to receive the user commands and input to construct the model and display at least one of the plurality of chemical reactions in the one or more tables*. Therefore, Applicants respectfully request that the above 35 U.S.C. §102(a) rejection of claims 1 and 20 be withdrawn.

B.   Claims 2-5, 21-23 and 37

Claims 2-5 and 37 depend from independent claim 1 and, as such, incorporate all of the features of claim 1. Therefore, for at least the reasons set forth above with respect to claim 1, Applicants respectfully request that the above 35 U.S.C. §102(a) rejection of claims 2-5 and 37 be withdrawn.

Claims 21-23 depend from independent claim 20 and, as such, incorporate all of the features of claim 20. Therefore, for at least the reasons set forth above with respect to claim 20, Applicants respectfully request that the above 35 U.S.C. §102(a) rejection of claims 21-23 be withdrawn.

Furthermore, Applicants urge that Sauro does not disclose or suggest at least that *the tabular view and the graphical view of the model comprise annotations to the model that are provided by a user*, *the annotations being displayed in an annotation column of the tabular view and in a location close to an element of the model in the graphical view*, which is present in Applicants' claim 37.

The Examiner claims that "Sauro et al. shows that annotations can be added to the SBML level 1 script (p. 366)," and "Sauro et al. shows in figure 11 user annotations on the graphical display of the model (fig 11, top center)." (See the Office Action, page 5). Applicants respectfully disagree.

Sauro describes that "JDesigner stores model in the form of SBML Level 1 (Hucka et al., 2003) with specific annotation added to support layout information." (See Sauro, page 364). However, the annotation added in Sauro is not provided by a user. Furthermore, Sauro does not disclose or suggest that the annotation is displayed in an annotation column of the tabular view and in a location close to an element of the model in the graphical view. In the top center portion of Figure 11 of Sauro, the annotation is not displayed in a location close to an element of the model in the graphical view. There is no disclosure in Sauro that *the tabular view and the graphical view of the model comprise annotations to the model that are provided by a user*, *the annotations being displayed in an annotation column of the tabular view and in a location close to an element of the model in the graphical view*.

For at least the reasons set forth above, Applicants respectfully urge that Sauro does not disclose or suggest each and every feature of Applicants' claim 37. Therefore, Applicants respectfully request that the above 35 U.S.C. §102(a) rejection of claim 37 be withdrawn.

C.   Claims 8 and 26

Applicants' claim 8 recites:

> 8.   A computer-implemented improved method for modeling a biological process comprising a plurality of chemical reactions, the method comprising:

providing a graphical user interface for accepting user commands and data;

receiving, via the provided user interface, user commands and data;

constructing, using the received user commands and data, a model of the biological process, the model being represented in a tabular view and a graphical, the ***tabular view being a representation of at least a portion of the model in one or more tables, the tabular view being adapted to receive the user commands and input to construct the model and display at least one of the plurality of chemical reactions in the one or more tables***;

generating, using the constructed model of the biological process, dynamic behavior of the modeled biological process; and

displaying the dynamic behavior of the biological process on a display device.

Applicants' claim 26 recites:

26.   A computer-implemented method for integrated modeling, simulation and analysis of chemical reactions, the method comprising:

providing a graphical user interface for accepting user commands and data;

receiving, via the provided user interface, user commands and data;

constructing, using the received user commands and data, a model of a chemical reaction, the model being represented in a tabular view and a graphical view, the ***tabular view being a representation of at least a portion of the model in one or more tables, the tabular view being adapted to receive the user commands and input to construct the model and display at least one of the plurality of chemical reactions in the one or more tables***;

generating, using the constructed model of the chemical reaction, an expected result of the modeled chemical reaction; and

displaying the expected result.

Applicants respectfully urge that Sauro does not disclose or suggest at least a ***tabular view being a representation of at least a portion of the model in one or more tables, the tabular view being adapted to receive the user commands and input to construct the model and display at least one of the plurality of chemical reactions in the one or more tables***, which is present in claims 8 and 26. As discussed above with respect to claims 1 and 20, Sauro does not disclose or suggest a ***tabular view being a representation of at least a portion of the model***

in one or more tables, the tabular view being adapted to receive the user commands and input to construct the model and display at least one of the plurality of chemical reactions in the one or more tables. For at least the reasons set forth above, Applicants respectfully urge that Sauro does not disclose or suggest each and every feature of Applicants' claims 8 and 26. Therefore, Applicants respectfully request that the above 35 U.S.C. §102(a) rejection of claims 8 and 26 be withdrawn.

D.   Claims 9-11, 27-29 and 38

Claims 9-11 and 38 depend from independent claim 8 and, as such, incorporate all of the features of claim 8. Therefore, for at least the reasons set forth above with respect to claim 8, Applicants respectfully request that the above 35 U.S.C. §102(a) rejection of claims 9-11 and 38 be withdrawn.

Claims 27-29 depend from independent claim 26 and, as such, incorporate all of the features of claim 26. Therefore, for at least the reasons set forth above with respect to claim 26, Applicants respectfully request that the above 35 U.S.C. §102(a) rejection of claims 27-29 be withdrawn.

Furthermore, Applicants respectfully urge that Sauro does not disclose or suggest at least that *the tabular view and the graphical view of the model comprise annotations to the model that are provided by a user, the annotations being displayed in an annotation column of the tabular view and in a location close to an element of the model in the graphical view*. As discussed above, Sauro does not disclose or suggest that *the tabular view and the graphical view of the model comprise annotations to the model that are provided by a user, the annotations being displayed in an annotation column of the tabular view and in a location close to an element of the model in the graphical view*. For at least the reasons set forth above, Applicants respectfully urge that Sauro does not disclose all of the features of Applicants' claim 38. Therefore, Applicants respectfully request that the above 35 U.S.C. §102(a) rejection of claim 38 be withdrawn.

E.   Claims 14 and 32

Applicants' claim 14 recites:

14.   An article of manufacture having embodied thereon computer-readable instructions for improved modeling of a biological process comprising a plurality of chemical reactions, the article of manufacture comprising:
        computer-readable instructions for providing a graphical user interface for accepting user commands and data;
        computer-readable instructions for receiving, via the provided user interface, user commands and data;
        computer-readable instructions for constructing, using the received user commands and data, a model of the biological process, the model being represented in a tabular view and a graphical view, the ***tabular view being a representation of at least a portion of the model in one or more tables, the tabular view being adapted to receive the user commands and input to construct the model and display at least one of the plurality of chemical reactions in the one or more tables***;
        computer-readable instructions for generating, using the constructed model of the biological process, dynamic behavior of the modeled biological process; and
        computer-readable instructions for displaying the dynamic behavior of the biological process.

Applicants' claim 32 recites:

32.   An article of manufacture having embodied thereon computer-readable instructions for integrated modeling, simulation and analysis of chemical reactions, the article of manufacture comprising:
        computer-readable instructions for providing a graphical user interface for accepting user commands and data;
        computer-readable instructions for receiving, via the provided user interface, user commands and data;
        computer-readable instructions for constructing, using the received user commands and data, a model of a chemical reaction, the model being represented in a tabular view and a graphical view, the ***tabular view being a representation of at least a portion of the model in one or more tables, the tabular view being adapted to receive the user commands and input to construct the model and display at least one of the plurality of chemical reactions in the one or more tables***;
        computer-readable instructions for generating, using the constructed model of the chemical reaction, an expected result of the modeled chemical reaction; and

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computer-readable instructions for displaying the expected
result.

Applicants respectfully urge that Sauro does not disclose or suggest at least a *tabular view being a representation of at least a portion of the model in one or more tables, the tabular view being adapted to receive the user commands and input to construct the model and display at least one of the plurality of chemical reactions in the one or more tables*, which is present in Applicants' claims 14 and 32. As discussed above with respect to claims 8 and 26, Sauro does not disclose a *tabular view being a representation of at least a portion of the model in one or more tables, the tabular view being adapted to receive the user commands and input to construct the model and display at least one of the plurality of chemical reactions in the one or more tables*. For at least the reasons set forth above, Applicants respectfully urge that Sauro does not anticipate Applicants' claims 14 and 32 under 35 U.S.C. §102(a). Therefore, Applicants respectfully request that the above 35 U.S.C. §102(a) rejection of claims 14 and 32 be withdrawn.

F.   Claims 15-17, 33-35 and 39

Claims 15-17 and 39 depend from independent claim 14 and, as such, incorporate all of the features of claim 14. For at least the reasons set forth above with respect to claim 14, Applicants respectfully request that the above 35 U.S.C. §102(a) rejection of claims 15-17 and 39 be withdrawn.

Claims 33-35 depend from independent claim 32 and, as such, incorporate all of the features of claim 32. For at least the reasons set forth above with respect to claim 32, Applicants respectfully request that the above 35 U.S.C. §102(a) rejection of claims 33-35 be withdrawn.

Furthermore, Applicants urge that Sauro does not disclose or suggest at least that *the tabular view and the graphical view of the model comprise annotations to the model that are provided by a user, the annotations being displayed in an annotation column of the tabular view and in a location close to an element of the model in the graphical view*, which is present in Applicants' claim 39. As discussed above, Sauro does not disclose or suggest that *the tabular view and the graphical view of the model comprise annotations to the model that are provided*

*by a user, **the annotations being displayed in an annotation column of the tabular view and in a location close to an element of the model in the graphical view**.* For at least the reasons set forth above, Applicants respectfully urge that Sauro does not disclose the feature of Applicants' claim 39. Therefore, Applicants respectfully request that the above 35 U.S.C. §102(a) rejection of claim 39 be withdrawn.

III.   Claim Rejections under 35 U.S.C. §102(b)

In the Office Action, the Examiner rejected claims 1-5, 8-11, 14-17, 20-23, 26-29, 32-35 and 37-39 under 35 U.S.C. §102(b) as being anticipated by Hucka. (See the Office Action, page 6). Applicants respectfully traverse this rejection in view of the amended claims.

A.   Claims 1 and 20

Applicants respectfully urge that Hucka does not disclose or suggest at least a ***tabular view being a representation of at least a portion of the model in one or more tables, the tabular view being adapted to receive the user commands and input to construct the model and display at least one of the plurality of chemical reactions in the one or more tables***, which is present in Applicants' claims 1 and 20.

In the Office Action, the Examiner claims that "[t]he SBML formatted script represents the model in a tabular view" and "Hucka et al. shows the model represented and [*sic*] graphical and tabular view where the tabular view is adapted to receive user commands and input to construct the model." (See the Office Action, page 8). Applicants urge that the SBML formatted script described in Hucka is not the tabular view of a model recited in claims 1 and 20. The SBML formatted script in Hucka is not a representation of at least a portion of the model in one or more tables. The SBML formatted script in Hucka does not receive user commands and input to construct a model and display at least one of the plurality of chemical reactions in one or more tables. Therefore, Hucka does not disclose Applicants' claimed ***tabular view being a representation of at least a portion of the model in one or more tables, the tabular view being adapted to receive the user commands and input to construct the model and display at least one of the plurality of chemical reactions in the one or more tables***.

For at least the reasons set forth above, Applicants urge that Hucka does not anticipate Applicants' claims 1 and 20 under 35 U.S.C. §102(b). Therefore, Applicants respectfully request that the above 35 U.S.C. §102(b) rejection of claims 1 and 20 be withdrawn.

B.   Claims 2-5, 21-23 and 37

Claims 2-5 and 37 depend from independent claim 1 and, as such, incorporate all of the features of claim 1. Therefore, for at least the reasons set forth above with respect to claim 1, Applicants respectfully request that the above 35 U.S.C. §102(b) rejection of claims 2-5 and 37 be withdrawn.

Claims 21-23 depend from independent claim 20 and, as such, incorporate all of the features of claim 20. Therefore, for at least the reasons set forth above with respect to claim 20, Applicants respectfully request that the above 35 U.S.C. §102(b) rejection of claims 21-23 be withdrawn.

Furthermore, Applicants urge that Hucka does not disclose or suggest at least that *the tabular view and the graphical view of the model comprise annotations to the model that are provided by a user, the annotations being displayed in an annotation column of the tabular view and in a location close to an element of the model in the graphical view*, which is present in Applicants' claim 37.

The Examiner claims that "[i]t is reasonable to interpret Hucka et al. describing the user created model to also include the user adding the annotation of S1 and S2," and "by creating a model in JDesigner, annotations are added to the graphic representation of the model as well as to the tabular representation of the model." (See the Office Action, page 8). Applicants respectfully disagree.

S1 and S2 depicted in Figure 1 of Hucka are output variables that are plotted on the plot window. The output variables S1 and S2 in Hucka are not annotations provided by a user. Furthermore, the output variables S1 and S2 in Hucka are not displayed in an annotation column of the tabular view and in a location close to an element of the model in the graphical view. There is no disclosure in Hucka that *the tabular view and the graphical view of the model*

comprise annotations to the model that are provided by a user, the annotations being displayed in an annotation column of the tabular view and in a location close to an element of the model in the graphical view, which is present in claim 37.

For at least the reasons set forth above, Applicants respectfully urge that Hucka does not disclose the feature of Applicants' claim 37. Therefore, Applicants respectfully request that the above 35 U.S.C. §102(b) rejection of claim 37 be withdrawn.

C.   Claims 8 and 26

Applicants respectfully urge that Hucka does not disclose at least a *tabular view being a representation of at least a portion of the model in one or more tables, the tabular view being adapted to receive the user commands and input to construct the model and display at least one of the plurality of chemical reactions in the one or more tables*, which is present in claims 8 and 26. As discussed above with respect to claims 1 and 20, Hucka does not disclose at least a *tabular view being a representation of at least a portion of the model in one or more tables, the tabular view being adapted to receive the user commands and input to construct the model and display at least one of the plurality of chemical reactions in the one or more tables*. For at least the reasons set forth above, Applicants respectfully urge that Hucka does not anticipate Applicants' claims 8 and 26 under 35 U.S.C. §102(b). Therefore, Applicants respectfully request that the above 35 U.S.C. §102(b) rejection of claims 8 and 26 be withdrawn.

D.   Claims 9-11, 27-29 and 38

Claims 9-11 and 38 depend from independent claim 8 and, as such, incorporate all of the features of claim 8. Therefore, for at least the reasons set forth above with respect to claim 8, Applicants respectfully request that the above 35 U.S.C. §102(b) rejection of claims 9-11 and 38 be withdrawn.

Claims 27-29 depend from independent claim 26 and, as such, incorporate all of the features of claim 26. Therefore, for at least the reasons set forth above with respect to claim 26, Applicants respectfully request that the above 35 U.S.C. §102(b) rejection of claims 27-29 be withdrawn.

Furthermore, Applicants urge that Hucka does not disclose or suggest at least that *the tabular view and the graphical view of the model comprise annotations to the model that are provided by a user*, *the annotations being displayed in an annotation column of the tabular view and in a location close to an element of the model in the graphical view*, which is present in Applicants' claim 38. As discussed above, there is no disclosure in Hucka that *the tabular view and the graphical view of the model comprise annotations to the model that are provided by a user*, *the annotations being displayed in an annotation column of the tabular view and in a location close to an element of the model in the graphical view*. For at least the reasons set forth above, Applicants respectfully urge that Hucka does not disclose the feature of Applicants' claim 38. Therefore, Applicants respectfully request that the above 35 U.S.C. §102(a) rejection of claim 38 be withdrawn.

E.   Claims 14 and 32

Applicants respectfully urge that Hucka does not disclose at least a *tabular view being a representation of at least a portion of the model in one or more tables*, *the tabular view being adapted to receive the user commands and input to construct the model and display at least one of the plurality of chemical reactions in the one or more tables*, which is present in Applicants' claims 14 and 32. As discussed above with respect to claims 8 and 26, Hucka does not disclose a *tabular view being a representation of at least a portion of the model in one or more tables*, *the tabular view being adapted to receive the user commands and input to construct the model and display at least one of the plurality of chemical reactions in the one or more tables*. For at least the reasons set forth above, Applicants respectfully urge that Hucka does not anticipate Applicants' claims 14 and 32 under 35 U.S.C. §102(b). Therefore, Applicants respectfully request that the above 35 U.S.C. §102(b) rejection of claims 14 and 32 be withdrawn.

F.   Claims 15-17, 33-35 and 39

Claims 15-17 and 39 depend from independent claim 14 and, as such, incorporate all of the features of claim 14. For at least the reasons set forth above with respect to claim 14,

Applicants respectfully request that the above 35 U.S.C. §102(b) rejection of claims 15-17 and 39 be withdrawn.

Claims 33-35 depend from independent claim 32 and, as such, incorporate all of the features of claim 32. For at least the reasons set forth above with respect to claim 32, Applicants respectfully request that the above 35 U.S.C. §102(b) rejection of claims 33-35 be withdrawn.

Furthermore, Applicants urge that Hucka does not disclose or suggest at least that *the tabular view and the graphical view of the model comprise annotations to the model that are provided by a user*, *the annotations being displayed in an annotation column of the tabular view and in a location close to an element of the model in the graphical view*, which is present in Applicants' claim 39. As discussed above, there is no disclosure in Hucka that *the tabular view and the graphical view of the model comprise annotations to the model that are provided by a user*, *the annotations being displayed in an annotation column of the tabular view and in a location close to an element of the model in the graphical view*. For at least the reasons set forth above, Applicants respectfully urge that Hucka does not disclose all of the features of Applicants' claim 39. Therefore, Applicants respectfully request that the above 35 U.S.C. §102(a) rejection of claim 39 be withdrawn.

IV.   Conclusion

In light of the above amendments and arguments, Applicants respectfully urge that all of the pending claims are in condition for allowance. Should the Examiner feel that a teleconference would expedite the prosecution of this application, the Examiner is urged to contact the Applicants' attorney at (617) 227-7400.

Please charge any shortage or credit any overpayment of fees to our Deposit Account No. 12-0080, under Order No. MWS-111RCE. In the event that a petition for an extension of time is required to be submitted herewith, and the requisite petition does not accompany this response, the undersigned hereby petitions under 37 C.F.R. §1.136(a) for an extension of time for as many months as are required to render this submission timely. Any fee due is authorized to be charged to the aforementioned Deposit Account.

Dated: November 19, 2008   Respectfully submitted,

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